



ecom
instruments

■ ■ ■ ■ ■ ■ ■ mobile experts



Ex-Pt 720

Operating Instructions



Contents

1. Application	23
2. Safety references	23
3. Malfunctioning and inadmissible operation	23
4. Safety regulations	24
4.1 Special conditions for use in Zone 0	25
5. Ex-Data	25
6. Technical Details	26
7. Operating instructions	27
7.1 Commisioning	27
7.2 Switching-on and measurement	28
7.2.1 Switching-on	28
7.2.2 HOLD-Function	28
7.2.3 Auto-Off-Function	28
7.2.4 Changing measuring range	28
7.2.5 Switching-off	28
7.3 Battery change	29
7.4 Temperature probes	29
7.4.1 Standard probes	29
7.4.2 Special probes	30
7.4.3 Calibration instructions	31
8. Repair	31
9. Cleaning, maintenance and storage	31
10. Disposal	32
11. Guarantee & liability	32
12. EC-Type approval	33
13. Certificate of Compliance	40

1. Application

The Ex-Pt 720 is a precise, robust and simple to operate temperature measuring device for temperature measurements in explosion-endangered areas of Zones 2 and 1 in accordance with Directive 1999/92/EC (ATEX 137) and Zone 2, 1 and 0 according to NEC (FM-Marking).

2. Safety references

These safety instructions contain information and safety regulations that must be followed to ensure safe and reliable operation of the unit under the described conditions. Failure to follow the information and instructions can have dangerous consequences or may contravene applicable regulations.

Please take the time to carefully read through the operating manual and safety instructions before you start using the unit!

In case of any doubt (in the form of translation or printing errors) the German language operating instructions shall apply.

3. Malfunctioning and inadmissible operation

As soon as one suspects that the safety of the equipment is endangered, it must be taken out of service and immediately removed from the Ex-area. Precautions must be taken to prevent its unintentional reuse.

We recommend that the unit be returned to the manufacturer for checking. For example, the safety of the unit could be endangered when:

- damage to the housing is visible.
- the unit was subjected to improper strain.
- the unit was incorrectly stored.
- the unit was damaged in transit.
- the lettering on the unit is unreadable.
- malfunctioning occurs.
- obviously incorrect measurements occur.
- measurements with the unit are no longer possible.
- the permissible limiting values were exceeded.

4. Safety regulations

Use of this unit assumes that the operator observes conventional safety regulations and has read the certificate in order to eliminate faulty operation of the unit.

The following additional safety regulations must also be observed:

- The unit may not be opened in Ex-areas.
- The batteries may only be changed outside the Ex-area.
- It is not allowed to take additional batteries into the Ex-area.
- Only type approved batteries may be used.
- Only sensors which have been approved by ecom may be used.
- It must be ensured that the unit is not taken into Zone 0.
- Measurements on electrically live parts are not allowed.
- Observe the measuring range of the temperature sensors.
Overheating will damage the sensors.
- Excessively heated sensors should not be taken into the Ex-area.
- Avoid use in aggressive acids or bases.
- Only operate the sensors in explosive vapour, mist, or gas/air mixtures under atmospheric conditions; temperature: -10...+50°C, pressure: 0.8...1.1 bar
- In the absence of explosive mixtures or if additional measures are implemented in accordance with EN 1127-1, the sensors may also be operated outside the atmospheric conditions according to the manufacturer's specifications.
- When using the sensors ensure that mechanical damage and friction are excluded in their application; in particular pay attention to flow conditions and vessel installations.
- If necessary, appropriate precautions are to be taken to prevent static charges.
- When using a grounding connection observe the specifications of EN 60079-14.
- The sensors are to be grounded before being taken into the Ex-area.


4.1 Special conditions for use in Zone 0

The measurement of temperatures with the Ex-Pt 720 within Zone 0 is only permitted if the following conditions are complied with:

- A stainless-steel sensor Type 0628 2232 or 0628 2432 is used.
- The sensors are to be grounded via the ground wire. When doing this make sure there is a secure ground connection. The grounding terminal is to be attached in such a way that it cannot be detached accidentally. The ground connection must be established outside Zone 0 and before taking the sensor into Zone 0. For more information with regard to appropriate grounding, please refer to, e.g. BG regulation BGR 132 (BG = Employer's Liability Insurance Association).
- The Ex-Pt 720 itself may not be taken into Zone 0.
- It must be absolutely ensured that the unit does not find its way accidentally into Zone 0. In order to guarantee this, the carrying strap of the unit must be attached additionally to the belt of the user or to a loop attached to his belt. The length of the carrying strap must be so adjusted that when the unit hangs freely on the carrying strap, the Ex-Pt 720 maintains a spacing of 50cm to the boundary area of Zone 0.
- Should the unit be used in the optionally available leather case, the carrying strap of the unit must still comply with the conditions for attachment to the user's body.

5. Ex-Data

EC-test approval-no.: TÜV 01 ATEX 1757 X

Ex-designation:  II 2(1) G Ex ia IIC T4

Approved for Zone 1, equipment group II, gas group C explosions-endangered gases, vapours or fog, temperature class T4.

Only the sensors specified in the approval certificate may be used. Sensor no. 0628 2232 and 0628 2432 may be used in Zone 0 !



Report Job Identification No: 3015067

FM Marking: I.S. Class I Div.1 A - D T4
Class I Zone 0 AEx ia IIC T4

Intrinsically safe for Class I, Division 1, Groups A, B, C, and D hazardous (classified) locations temperature class T4 at a 50°C ambient and intrinsically

safe for Class I Zone 0 Group IIC hazardous (classified) locations temperature class T4 at a 50°C ambient.

6. Technical Details

Ambient temperature Ta: -10 ... +50°C

Storage temperature: -20 ... +70°C

Batteries: 9V-Block, 6LR61 as per IEC
(only type tested batteries)

Table with type-tested batteries:

Type	Manufacturer
6 LR 61 Alkaline No.4822	Varta
6 LR 61 Alkaline Universal No. 4022	Varta
6 LR 61 Alkaline Elektric Power No. 8022	Varta
6 LR 61 Alkaline	Duracell
6 LR 61 Alkaline Ultra	Duracell
6 LR 61 Alkaline Batterie Procell	Duracell
6 LR 61 Alkaline Power Line Industrial Battery	Panasonic
6 LR 61 Alkaline Energizer	Ralston Energy
6 LR 61 Alkaline	Daimon

Operating life: approx. 100h

Dimensions: 190 x 57 x 42 mm

Weight: approx. 200g (with batteries)

Case material: ABS

IP-protective rating: IP 54

EC-designation: C 0102

Display: LCD, digit height 14mm

Measuring device: Pt 100-Sensor, 4-wire-technique

Measuring range:

The measuring range of the sensors within explosive zones depends on the temperature class of the Ex-area and it is distinguished as follows:

T1: -10 ... 360°C

T2: -10 ... 210°C

T3: -10 ... 110°C

T4: -10 ... 50°C

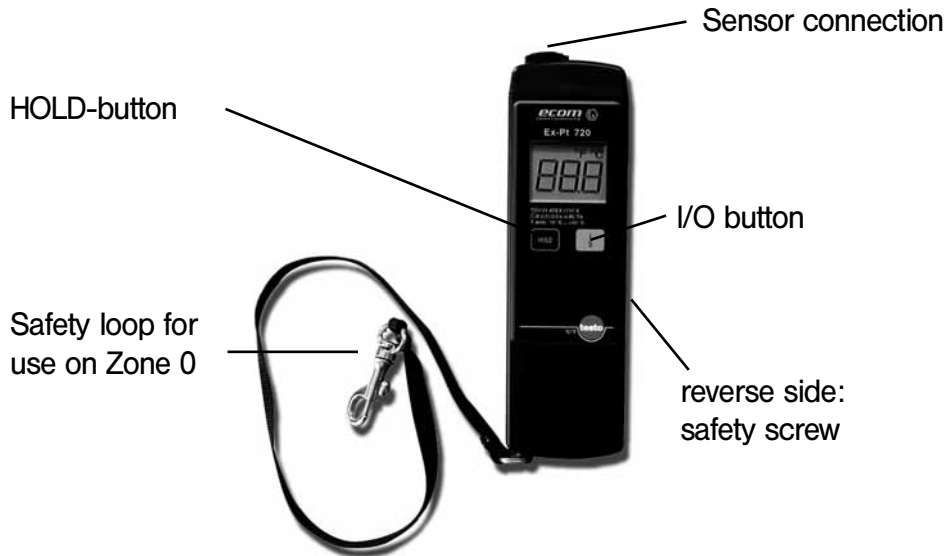
Please also note the maximum working temperature of the unit
Ta: -10 ... +50°C:

Accuracy: -50°C to +199,9°C: $\pm 0,2^{\circ}\text{C}$, ± 1 digit
+200°C to +400°C: $\pm 0,2\%$ from measured value, ± 1 digit

Resolution: -50°C to +199,9°C: 0,1°C
+200°C to +400°C: 1°C

System accuracy: -50°C to +99,9°C: $\pm 0,6^{\circ}\text{C}$, ± 1 digit
(with immersion/insertion sensor) +100°C to +400°C: $\pm 0,5\%$ from measured value, ± 1 digit

7. Operating instructions



7.1 Commissioning

- carefully read operating instructions.
- open back of unit with key.
- insert battery correctly (observe polarity).
- insert battery safety cover.
- close unit with safety screw.

7.2 Switching-on and measuring

7.2.1 Switching-on

Insert sensor into measuring socket (take note of plug coding).

Switch unit on with >I/O pushbutton<.

After switching on, a short display and function test will take place. The measuring instrument is now ready for use.

7.2.2 Hold-Function

The measured values can be retained in the display with the >Hold pushbutton<

7.2.3 Auto-Off-Function

The Auto-Off-Function switches the unit off after 10 minutes operating time thus avoiding unintentional discharge of the battery.

7.2.4 Changing measuring range

The display can be switched between °C and °F.

While switching the unit on with the >I/O pushbutton< press >HOLD-pushbutton< and hold it.

After the self test is finished, the currently selected max. measuring value will blink.



Pressing the >Hold-pushbutton< switches between °C and °F.

Should no pushbutton be pressed for 5 seconds after a changeover, then the new measuring value will be accepted.

7.2.5 Switching-off

Switch the unit off with the >I/O pushbutton< . The display is no longer active.

7.3 Battery change

Should the <BAT> symbol be displayed constantly, then the battery will need to be changed within the next 1-2 hours. The unit switches itself automatically off should the battery voltage be too low.

Open the back of the unit by unscrewing it, remove the exhausted battery and insert a new one (observe polarity).

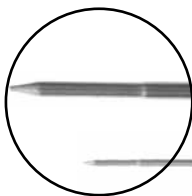
- while changing the battery, the cover may not be separated from the unit top shell.
- Only use approved battery types.
- Make sure that the polarity of the inserted batteries is correct.
- Please ensure that all used batteries are properly disposed of in an environmentally friendly manner.
- batteries may only be changed outside the Ex-area.
- the taking of additional batteries into the Ex-area is not allowed.

7.4 Temperature probes

7.4.1 Standard probes

Immersion / insertion probe

0628 1232:	accuracy:	class A
	Ex-Zones:	2, 1
	probe dimensions:	110mm x 4mm (w x ø)
	sensor dimensions:	30mm x 3,2mm (w x ø)
	response time (99%):	12 Sec.



Surface probe

0628 1932:	accuracy:	class B
	Ex-Zones:	2, 1
	probe dimensions:	110mm x 4mm (w x ø)
	sensor dimensions:	3,2mm (ø)
	response time (99%):	40 Sec.



Stainless-steel probe

0628 2232:

accuracy:	class A
Ex-Zones:	2, 1, 0
probe dimensions:	125mm x 4mm (w x ø)
sensor dimensions:	15 x 3mm (w x ø)
response time (99%):	10 Sec



Drone Tankprobe

0628 2432:

accuracy:	class A
Ex-Zones:	2, 1, 0
probe dimensions:	235mm x 25mm (w x ø)
wight:	400g (without cable)
response time (99%):	10 Sec
cable:	25 m



7.4.2 Special probes

Immersion / insertion probe

0600 9999

0628 1232:

accuracy:	class A
Ex-Zones:	2, 1
probe dimensions:	>50mm x >4mm (w x ø)
sensor dimensions:	>30mm x >3,2mm (w x ø)
response time (99%):	12 Sec.

Surface probe

0600 9999

0628 1932:

accuracy:	class B
Ex-Zones:	2, 1
probe dimensions:	>50 mm x >4mm (w x ø)
sensor dimensions:	>9 mm (ø)
response time (99%):	40 Sec.

Stainless-steel insertion probe

0600 9999

0628 2232:	accuracy:	class A
	Ex-Zones:	2, 1, 0
	probe dimensions:	>50mm x >4mm (w x ø)
	sensor dimensions:	>15 x >3mm (w x ø)
	response time (99%):	10 Sec.

Drone Tankprobe

0600 9999

0628 2432:	accuracy:	class A
	Ex-Zones:	2, 1, 0
	probe dimensions:	235mm x 25mm (w x ø)
	wight:	400g (without cable)
	response time (99%):	10 Sec
	cable:	1 ... 50 m

7.4.3 Calibration instructions

The plastic handle withstands a temperature of approx. 200°C for a short time. A long-term maximum of 90°C is recommended.

Please take this into account when calibrating the system or individual components.

8. Repair

Repairs are to be conducted by ecom instruments GmbH or by personnel or service centres authorised by ecom instruments GmbH, because the safety of the unit needs to be tested after repairs are implemented.

9. Cleaning maintenance and storage

- Only use a suitable cloth or sponge to clean the unit. Do not use any solvents or abrasive cleaning agents when cleaning.
- It is recommended that you have the functionality and accuracy of the unit inspected by the manufacturer every two years.
- The batteries should be removed from the unit during prolonged periods of storage.
- Do not allow storage temperatures to exceed or fall below the permitted range of -20°C to +70°C.

10. Disposal

Old electrical devices as well as „historical“ old electrical devices from ecom instruments GmbH are supplied for disposal at our expense and disposed of free of charge in accordance with European Directive 2002/96/EC and the German electrical law of 16/03/2005.

The costs associated with returning devices to ecom instruments GmbH are to be borne by the sender.

11. Guarantee & liability

Under the general terms and conditions of business, ecom instruments GmbH offers a two-year warranty for functioning and materials for this product when used under the specified operating and maintenance conditions. This does not apply to wear parts (such as batteries and lamps).

This warranty does not extend to products that have been used improperly, altered, neglected, damaged by accident or subjected to abnormal operating conditions or improper handling. In the event of a warranty claim, the faulty unit should be sent in. We reserve the right to re-calibrate, repair or replace the unit.

The above warranty terms represent the sole rights of the purchaser to compensation and apply exclusively and in place of all other contractual or statutory warranty obligations. ecom instruments GmbH does not accept liability for specific, direct, indirect, incidental or consequential damages or losses, regardless of whether they are caused by breach of warranty, lawful or unlawful actions, actions in good faith or other actions.

If in certain countries the restriction of statutory warranty and the exclusion or restriction of incidental or consequential damages is unlawful, then it may be possible that the above restrictions and exclusions do not apply for all purchasers. If any clause in these warranty terms is found to be invalid or unenforceable by a competent court, then such a judgement shall not affect the validity or enforceability of any other clause contained in these warranty terms.

12. EC type approval

TÜV CERT

(1) **EC – Type approval test certificate**

(2) Equipment and protective systems for use according to certain regulations in explosion-endangered areas – Guideline 94/9/EC

(3) EG Type approval test certificate number

TÜV 01 ATEX 1757 X

(4) Equipment: Explosion-protected temperature measuring unit Type Ex-Pt 720*

(5) Manufacturer: ecom instruments GmbH

(6) Address: D-97959 Assamstadt, Industriestrasse 2

(7) The type of design as well as the various permissible versions are specified in the appendix to this type approval test certificate.

(8) The TÜV Hannover/Sachsen-Anhalt e.V., TÜV CERT-certification authority, hereby confirms, as recognized authority no. 0032 according to Article 9 of the Guidelines of the Council of the European Union dated March 23rd, 1994 (94/9/EG), the fulfilment of the fundamental safety and health requirements for the conception and design of equipment and protective systems according to certain regulations in explosion-endangered areas in line with Appendix II of the guidelines.

The test results are recorded in the confidential test report No. 01 YEX 137383.

(9) The fundamental safety and health requirements are fulfilled on account of compatibility with

EN 50014:1997

EN 50020:1994

(10) Should the letter "X" appear at the end of the certification number, attention is drawn to special conditions for the safe use of the equipment which can be found in the appendix.

(11) This EG type approval test certificate only refers to the conception and testing of certain equipment in line with Guideline 94/9/EG. The additional requirements of this guideline which are valid for the manufacture and commissioning of this equipment are not covered by this certificate.

(12) The designation of the equipment must contain the following details:

 **II 2 (1) G EEx ia IIC T4**

TÜV Hannover/Sachsen-Anhalt e.V.
TÜV CERT-certification authority
Am TÜV 1
D-30519 Hannover

Hannover, 19.02.2002

The person in charge

This EG type approval test certification may only be distributed in unchanged form.
Extracts or changes need the approval of the TÜV Hannover/Sachsen-Anhalt e.V

(13)

Appendix

(14)

EC – Type approval test certificate No. TÜV 01 ATEX 1757 X

(15)

Description of the equipment

The explosion-protected temperature measurement unit Type Ex-Pt 720* may be used in explosion-endangered areas which require category 2 or 3 respectively. The sensors which are specially mentioned in the operating instructions may be used for the measurement of temperatures in category 1.

The permissible ambient temperature range is 0°C to +50°C.

Electrical data

Power supply	one block battery as per IEC 6LR61 or 6F22
(internal battery)	U = 9V

Only batteries which have satisfied the type-testing in accordance with section 10.9 of EN 50020:1994 are allowed to be used. The manufacturers and their type numbers are listed in the operating instructions.

(16)

Test documentation is listed in test report No. YEX 137383.

(17)

Special conditions

The temperature measuring unit Type Ex-Pt 720* may not be opened within the explosion-endangered area.

The version with the type designation EX-Pt 720L may only be used within explosion-endangered areas when it is enclosed in the leather case which is supplied with it.

In addition, the following applies to the measurement of temperatures within category 1:

The temperature measuring unit Type Ex-Pt 720* itself may not be taken into areas which require category 1 operating equipment. Only the sensors listed in the operating instructions as being suitable for category 1 may be used.

The carrying strap of the unit is to be attached to a loop on the user's belt in such a way that when the unit hangs freely on the strap it always maintains a spacing of > 50 cm from the boundary of the area which requires category 1. Only the manufacturer's carrying strap may be used.

(18)

Fundamental safety and health requirements

No additional ones.

1st Supplement
to
EC – Type approval test certificate No. TÜV 01 ATEX 1757

The company: ecom instruments GmbH
Industriestrasse 2
D-97959 Assamstadt

In the future, the explosion-protected temperature measuring instrument Type Ex-Pt 720* may be manufactured in accordance with the documentation listed in the test report. The changes are concerned with the external design and the use of further sensors. The permissible ambient temperature is dependent on the type as shown in the following table:

Type	Permissible ambient temperature range
Ex-Pt 720 L	0°C to +50°C
Ex-Pt 720	-10°C to +50°C

The electrical data are valid without change for this supplement.

(16) Test documentation is listed in test report No. 02 YEX 164755.

(17) Special conditions

The temperature measuring unit Type Ex-Pt 720* may not be opened within the explosion-endangered area. The version with the type designation EX-Pt 720L may only be used within explosion-endangered areas when it is enclosed in the leather case which is supplied with it.

In addition, the following applies to the measurement of temperatures within explosion-endangered areas which need category 1 equipment:

The temperature measuring unit Type Ex-Pt 720* itself may not be taken into areas which require category 1 equipment. Only the sensors listed in the operating instructions as being suitable for category 1 may be used.

The carrying strap of the unit is to be attached to a loop on the user's belt in such a way that when the unit hangs freely on the strap it always maintains a spacing of > 50 cm from the boundary of the area which requires category 1. Only the manufacturer's carrying strap may be used.

(18) Fundamental safety and health requirements

No additional ones.

2. S U P P L E M E N T
to
EC-Type-Examination Certificate No. TÜV 01 ATEX 1757 X
(translation)

of the company: ecom instruments GmbH
Industriestrasse 2
97959 Assamstadt
Germany

The explosion-proof temperature measuring device of type EX-Pt 720* has been approved for manufacture according to the documents listed in the test/examination report. The changes refer to the outer structure and the use of an additional sensor.

The electrical data and the special conditions shall continue to be valid for this supplement.

The test documents are listed in test protocol No. 03 YEX 550274.

TÜV NORD CERT GmbH & Co. KG
2003
TÜV CERT-Zertifizierungsstelle
Am TÜV 1
D-30519 Hannover
Germany
Phone: +49 (0) 511 986-1470
Fax: +49 (0) 511 986-2555

Hannover, 07 Jan.

Signature:
The Chief Officer

3. SUPPLEMENT
to
EC-Type-Examination Certificate No. TÜV 01 ATEX 1757 X
(translation)

of the company: ecom instruments GmbH
Industriestrasse 2
97959 Assamstadt
Germany

The explosion-proof temperature measuring device of type EX-Pt 720* has been approved for manufacture according to the documents listed in the test/examination report.
The modifications are related to the internal structure of two probes, only.

The electrical data and the special conditions shall continue to be valid for this supplement.

The test documents are listed in test protocol No. 04 YEX 551244.

TÜV NORD CERT GmbH & Co. KG

Hannover, 17. 02. 2004

TÜV CERT-Zertifizierungsstelle
Am TÜV 1
D-30519 Hannover
Germany
Phone: +49 (0) 511 986-1470
Fax: +49 (0) 511 986-2555

Signature:
The Chief Officer

4th ADDENDUM

to certificate number:

TÜV 01 ATEX 1757 X

Device:

Explosion-shielded temperature gauge
Type Ex-Pt 720*

Manufacturer:

ecom instruments GmbH

Address:

Industriestr. 2
97959 Assamstadt

Order number:

8000554136

Date of issue:

12.11.2007

Changes:

The explosion-shielded temperature gauge type Ex-Pt 720* may be manufactured in the future in accordance with the documents listed in the test report. The changes concern the inner structure of the sensors, the battery holder and the test plate.

The electrical data and all other details remain unchanged for this addendum.

This addendum fulfils the requirements of the following standards:

EN 60079-0:2006

EN 60079-11:2007

EN 60079-26:2007

(16) The test documents are listed in test report No. 07 203 554136.

(17) Special conditions

no additional requirements

(18) Fundamental health and safety requirements

no additional requirements

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, accredited by the Central Authority of the Federal States for Safety (ZLS), ID No. 0044. Assignee of TÜV NORD CERT GmbH & Co. KG ID No. 0032

Head of the certification body

Schwedt

Hanover branch, Am TÜV 1, 30519 Hannover, Tel.: +49 (0) 511 986-1455, Fax: +49 (0) 511 986-1590

5th ADDENDUM

to certificate number:

TÜV 01 ATEX 1757 X

Device:

Explosion-shielded temperature gauge
Type Ex-Pt 720*

Manufacturer:

ecom instruments GmbH

Address:

Industriestr. 2
97959 Assamstadt

Order number:

8000554527

Date of issue:

04.07.2008

Changes:

The temperature sensors 06282232 and 06282432 approved for Zone 0 and their special sensors are additionally provided with a grounding connection.

The equipment is inspected in line with the change in standards from EN 50014:1997+A1+A2 to EN 60079-0:2006.

The electrical data and all other details remain unchanged for this addendum.

This addendum fulfils the requirements of the following standards:

EN 60079-0:2006

EN 60079-11:2007

EN 60079-26:2007

The device incl. this addendum fulfils the requirements of the following standards:

EN 60079-0:2006

EN 50020:1994

EN 50284:1999

(16) The test documents are listed in test report No. 08 203 554527.

(17) Special conditions

The manufacturer's safety regulations are to be observed.

The temperature gauge type Ex-Pt 720* should not be opened within explosive areas.

The version with type designation Ex-Pt 720L should only be used in explosive areas in the appropriate leather case.

Only type-tested batteries are to be used (the types to be used are specified in the instruction manual for the gauge).

The following are also applicable for measuring temperatures in Zone 0:

The temperature gauge type Ex-PT 720* should not be introduced into areas which require the use of category 1 equipment. Only the stainless steel sensors that are specified as being suitable for Zone 0 in the instruction manual may be used (type 0628 2232 or 0628 2432).

The grounding terminal is to be used when using the sensors in Zone 0. When using the grounding terminal make sure it is securely connected and prevented from being detached accidentally.

The carrying strap of the device is to be attached to the operator's belt or belt loop in such a way that when the device hangs freely on the strap a safety clearance of ≥ 50 cm is still maintained (requirement for Zone 0). Only the manufacturer's carrying strap should be used.

(18) Basic health and safety requirements

no additional requirements

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, accredited by the Central Authority of the Federal States for Safety (ZS), ID No. 0044. Assignee of TÜV NORD CERT GmbH & Co. KG ID No. 0032

Head of the certification body

Schwedt

Geschäftsstelle Hannover, Am TÜV 1, 30519 Hannover, Tel.: +49 (0) 511 986-1455, Fax: .. +49 (0) 511 986-1590

13. Certificate of Compliance



FM Approvals
1151 Boston-Providence Turnpike
P.O. Box 9102 Norwood, MA 02062 USA
T: 781 762 4300 F: 781 762 9375 www.fmglobal.com

CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

Ex-Pt 720 Temperature Measuring Unit

IS / I / 1 / ABCD / T4, Ta = 50 °C
I / 0 / AEx ia IIC T4, Ta = 50 °C

Special Condition of use;

1. Must be used with probes 0628-1232, 0628-1932, 0628-2232, 0628 2432

Equipment Ratings:

Intrinsically safe for Class I, Division 1, Groups A, B, C, and D hazardous (classified) locations temperature class T4 at a 50°C ambient and intrinsically safe for Class I Zone 0 Group IIC hazardous (classified) locations temperature class T4 at a 50°C ambient.

Approved for:

ecom instruments
Industriestraße 2, D-97959 Assamstadt, Germany

An FM Global Enterprise



This certifies that the equipment described has been found to comply with the following FM Approval Standards and other documents:

Class 3600	1998
Class 3610	1999
Class 3810	1989

Original Project ID: 3015067

FM Approval Granted: October 25, 2002

Subsequent Revision Reports / Date FM Approval Amended

Report Number	Date	Report Number	Date
030204	February 26, 2004		

FM Global Technologies LLC

Nicholas P. Ludlam
Technical Team Manager

March 15, 2004
Date

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PA000148 / 500 / 09/08

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2800AL01A02 08/08 Änderungen vorbehalten! Subject to change without notice!